

Figure 1

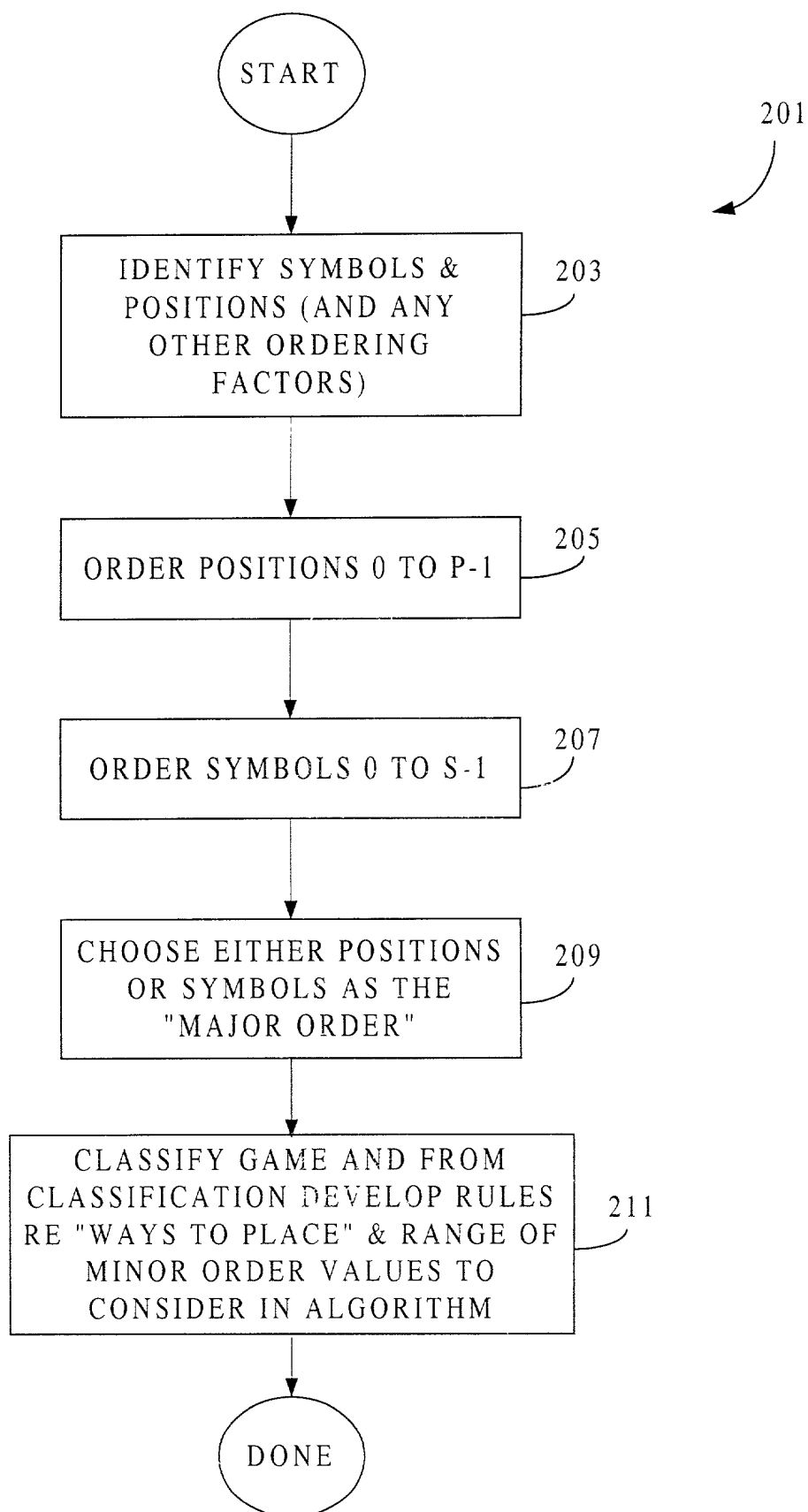
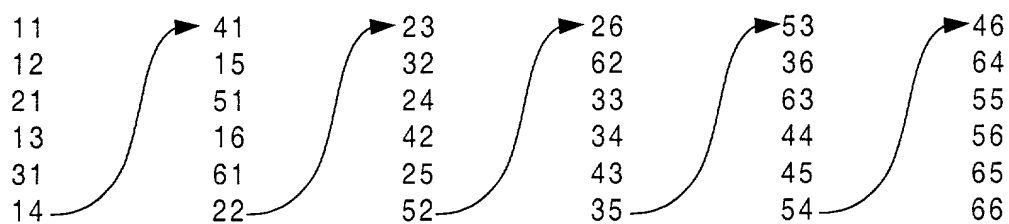


Figure 2

2h	3h	4h	5h	6h
2h	3h	4h	5h	7h
2h	3h	4h	5h	8h
		⋮		
2h	3h	4h	5h	Ah
2h	3h	4h	6h	7h
2h	3h	4h	6h	8h
		⋮		
3h	4h	5h	6h	7h
3h	4h	5h	6h	8h
		⋮		
9s	10s	Js	Qs	Ks
9s	10s	Js	Qs	As
		⋮		
10s	Js	Qs	Ks	As

Figure 3

Symbols as Major Order (Two Dice)



Position as Major Order (Two Dice)

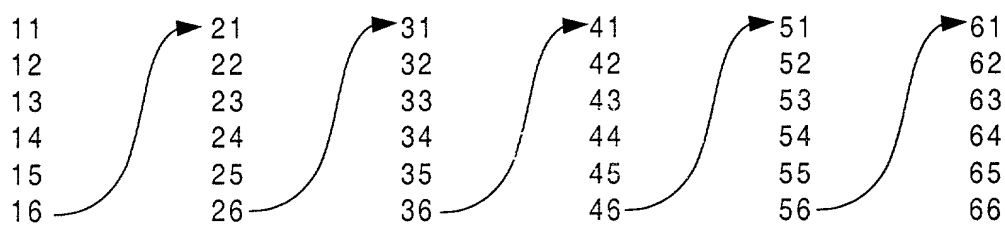


Figure 4

Poker Hand
Under
Consideration

3H KH 2D 7C 4S

number skipped over at position P=0	2H	3H	4H	5H	6H	Ways to place 3H 4H,	
	2H	3H	4H	5H	7H		
	2H	10S	JS	QS	KS		
	2H	JS	QS	KS	AS		
	3H	4H	5H	6H	7H		
	3H	4H	5H	6H	8H		
	3H	4H	JS	QS	KS		
3H	4H	QS	KS	AS			
3H	5H	6H	7H	8H			
3H	5H	6H	7H	9H			
<hr/>							
3H	QH	JS	QS	KS	number skipped over at position P=1		
3H	QH	QS	KS	AS			
3H	KH	AH	2D	3D			
3H	KH	AH	2D	4D			
10S	JS	QS	KS	AS			

Figure 5

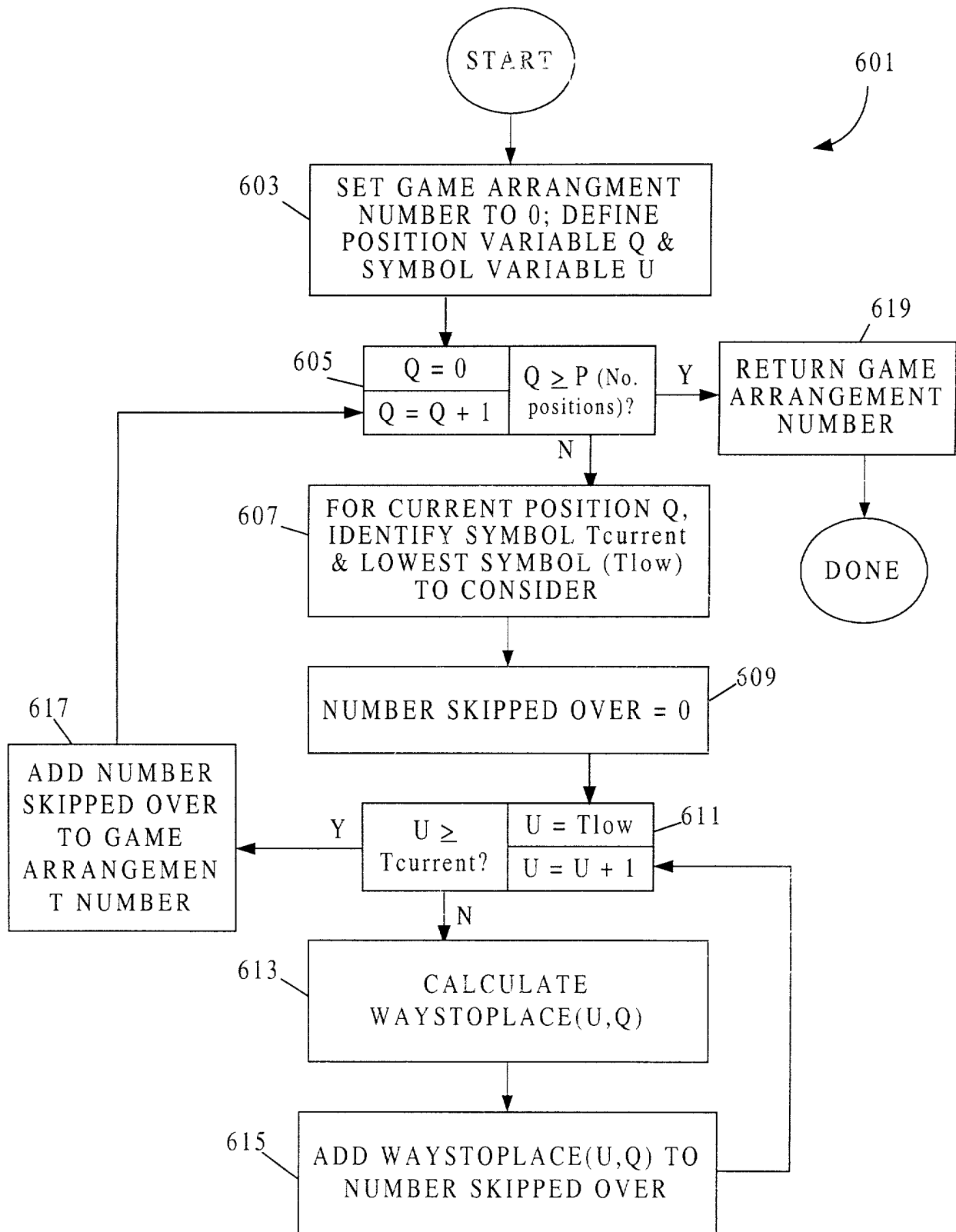


Figure 6

Convert KH, 7C, 4S, 8D, 3H to a number

Order the Cards! → 3H, KH, 8D, 7C, 4S

Start with # = 0

Position Q = 0

Symbol T = 1 (3H) 3H - - -

U = 0 (2H)

Compute # of ways to place 2H - - - - (choose (52-0-1, 5-0-2))
= 249,900

= 0 + 249,900 = 249,900

Position Q = 1, $T_{\text{current}} = \text{KH}$, $T_{\text{Low}} = 4\text{H}$; 3H KH - - -

U = 2 (4H)

Compute # of ways to place 3H 4H - - -
= 18,424

= 249,900 + 18,424 = 268,324

U = 3 (5H)

Compute # of ways to place (3H 5H - - -) = 17,296

= 268,324 + 17,296 = 289,620

U = 4 (6H)

Compute # of ways to place (3H 6H - - -) = 16,215

= # + 16,215 = 301,835

U = 5 (7H)

Compute # of ways to place (3H 7H - - -) = 15,180

= # + 15,180 = 317,015

U = 6 (8H)

Compute # of ways to place (3H 8H - - -) = 14,190

= # + 14,190 = 331,205

U = 7 (9H)

Compute # of ways to place (3H 9H - - -) = 13,244

= # + 13,244 = 344,449

U = 8 (10H)

Compute # of ways to place (3H 10H - - -) = 12,341

= # + 12,341 = 356,796

Figure 7A

U = 9 (JH)

Compute # of ways to place (3H JH - - -) = 11,480

= # + 11,480 = 368,270

U = 10 (QH)

Compute # of ways to place (3H QH - - -) = 10,660

= # + 10,660 = 378,930

U = 11 (KH) This our symbol T. Stop and go to the next position.

Position Q = 2, Symbol T = 19 (8D)

by placing this card

#s skipped over by (3H - - - -)

= ways to place (2H - - - -)

by placing this card

skipped over by (3H KH - - -)

= ways to place (3H 4H - - -)

+ ways to place (3H 5H - - -)

+ ways to place (3H 6H - - -)

+ ways to place (3H 7H - - -)

+ ways to place (3H 8H - - -)

+ ways to place (3H 9H - - -)

+ ways to place (3H 10H - - -)

+ ways to place (3H QH - - -)

skipped over by (3H KH 8D - -)

= ways to place (3H KH 8D - -)

+ ways to place (3H KH AH - -)

+ ways to place (3H KH 2D - -)

+ ways to place (3H KH 3D - -)

+ ways to place (3H KH 4D - -)

Figure 7B

	Position Dependent	Position Independent
With Replacement	$\begin{aligned} &\text{exp}(x, y) \\ &0 \leq U \leq T_{\text{curr}} \\ &T_{\text{low}} = 0 \end{aligned}$	$\begin{aligned} &C(x, y) \\ &T_{\text{prev}} \leq U \leq T_{\text{curr}} \\ &T_{\text{low}} = T_{\text{prev}} \end{aligned}$
Without Replacement	$\begin{aligned} &P(x, y) \\ &0 \leq U \leq T_{\text{curr}} \\ &\text{(excluding previously used values)} \\ &T_{\text{low}} = 0 \end{aligned}$	$\begin{aligned} &C(x, y) \\ &T_{\text{prev}} < U < T_{\text{curr}} \\ &T_{\text{low}} = T_{\text{prev}} + 1 \end{aligned}$

Figure 8

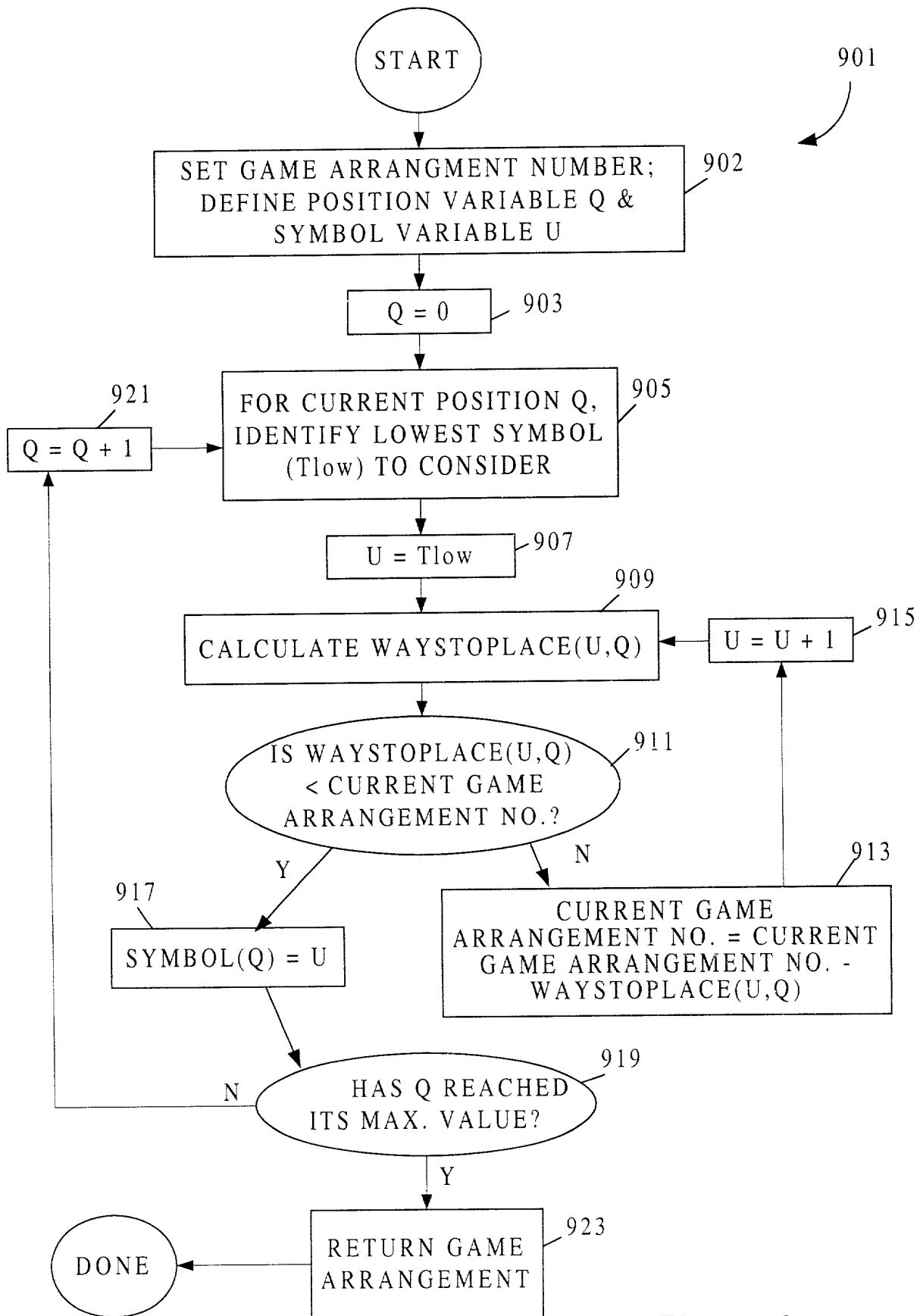


Figure 9

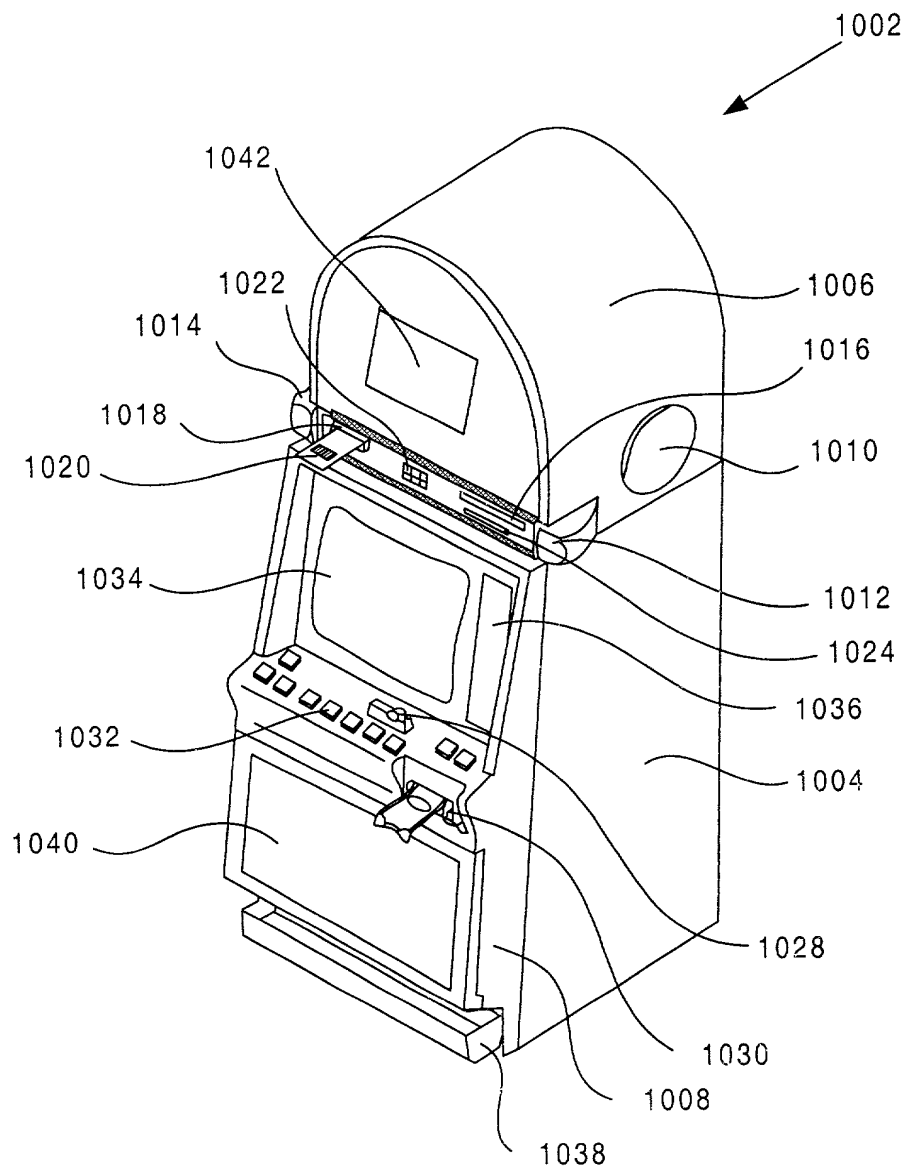


Figure 10

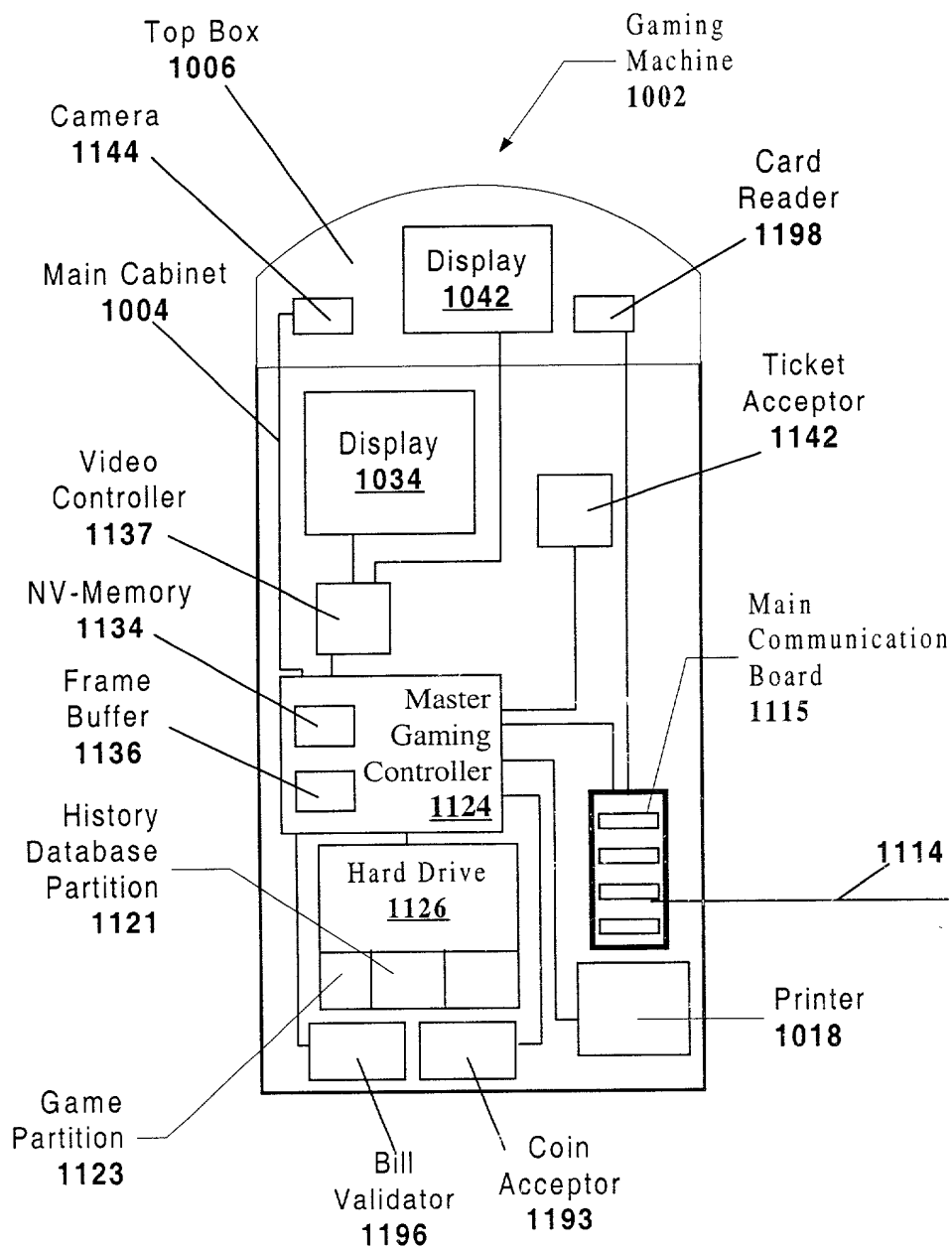


Figure 11